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09/886,958	06/21/2001	Kevin J. Dowling	CKB-005.01.	5019

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EXAMINER	
FLANDERS, ANDREW C	

ART UNIT	PAPER NUMBER
2644	

DATE MAILED: 08/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/886,958	DOWLING ET AL.	
	Examiner	Art Unit	
	Andrew C. Flanders	2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-93* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-93* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant alleges:

> "In item 3 on page 2 of the Office Action, the Examiner concedes that Kiltz fails to disclose or suggest LEDS. Applicants agree that Kiltz lacks this teaching. The Examiner alleges, however, that it would have been obvious to one of ordinary skill in the art to use LEDS as colored light sources, suggesting that "LEDS are merely one of many various implementations of colored light sources and their use would not require inventive skill" (to this end, the Examiner also references Drago, U.S. Patent No. 5,461,188, discussed further below). Applicants disagree with this assertion."

Examiner has considered this argument and does not find it persuasive. Applicant disagrees with the use of LEDs being obvious but does not provide any evidence or arguments as to why. Applicant only provides a statement of disagreement. As such, the Examiner maintains the position of substitution of the LEDs being obvious.

Applicant further alleges:

> "Perhaps more notably, however, Kiltz fails to disclose or suggest executing a lighting program to control a plurality of light emitting diodes (LEDs)," as recited in the act (C) of Applicants' claim 1; such a limitation is completely missing in the Kiltz reference. For at least the foregoing reasons, claim 1 patentably distinguishes over Kiltz, and the rejection should be withdrawn."
>
> "As set forth in MPEP 92143, three criteria must be met in order to establish a prima facie case of obviousness. First, there must be some suggestion or motivation, either in the cited reference(s) or in the knowledge generally available to one of ordinary skill in the art, to modify the cited reference(s) or to combine reference teachings (if multiple references are cited). Second, there must be a reasonable expectation of

> success. The teaching or suggestion to modify the references) or to combine reference teachings, as well as the reasonable expectation of success, must both be found in the prior art and not based on. Applicants' disclosure. Third, the prior art reference(s), when viewed as a whole, must teach or suggest all of the claimed features. Failure to meet any one of these criteria – a teaching or suggestion of all claim elements, a specific suggestion or motivation to modify or combine the prior art, and a reasonable expectation of success - is sufficient to render an obviousness rejection improper."
>
> "Again, in the rejection of claim 1, at least one of the foregoing obviousness criteria - namely, a teaching or suggestion of all claim elements - clearly is not met. As indicated above, Kiltz completely fails to disclose or suggest "executing a lighting program to control a plurality of light emitting diodes (LEDs)," as recited in claim 1."
>
> "Rather, Kiltz discloses a system of electronic components, or "hardware," for decoding analog audio signals representing a music source, and providing a visual color display that varies in accordance with the frequency spectrum of the music source. In Kiltz, a preselected assignment of light color to different audio frequency bands of the music source is defined by decoder logic (i.e., an arrangement of NAND gates, see Fig. 3). More specifically, in Kiltz, analog driver circuits that control colored lights are hard wired" to the output of the decoder logic in a fixed predetermined manner (see Fig. 4). Thus, in Kiltz, there is no lighting program to be executed so as to control anything (including light sources), nor is there any component capable of executing any type of program."

Examiner disagrees. In the above stated arguments applicant is primarily alleging that the previous rejection did not create a prmia facie case of obviousness because the prior art references do not teach "executing a lighting program to control a plurality of light emitting diodes" Examiner disagrees with this allegation. Applicant alleges that the lighting program is non existent because Kiltz discloses hardware for controlling the lights. Examiner believes applicant is reading upon the term program too narrowly. The American Heritage College Dictionary defines program (enclosed herein) as "An ordered list of events to take place or procedures to be followed; a schedule." Reading the claim as broadly as possible, the Kiltz modification does in fact disclose,

"executing a lighting program to control a plurality of light emitting diodes". As shown in the previous action the Kiltz modification teaches "activation (i.e. execution) of one or more lamp driver circuits (i.e. controlling a plurality of LEDs), according to a preselected assignment of light cooler to each audio frequency band defined by the decode logic; col. 4 lines 56 – 65. The activation of the preselected assignment in response to the frequency is executing a lighting program as program is defined above (i.e. procedures to be followed). As such the argument is moot and the rejection stands.

Applicant further alleges:

> "Interestingly, the Examiner essentially concedes as much on page 1 of the Office Action. In particular, in the rejection of independent claim 35 over the combination of Kiltz and Drago (discussed in greater detail below), the Examiner admits that "Kiltz does not explicitly state at least one storage medium to store the lighting program." Thus, if Kiltz fails to disclose or suggest a storage medium, as the Examiner correctly concludes, then Kiltz necessarily fails to teach or suggest the execution of a lighting program. Without a storage medium to store a lighting program, a fortiori, Kiltz could not possibly execute a lighting program; even the most modest conventional microcontrollers or microprocessors include some minimum storage capacity to facilitate program execution."

Examiner has considered this argument and does not find it persuasive. It appears as applicant is relying on the fact the "lighting program" in question is in software and needs to be stored within a memory. However, Claim 1 does not contain any of these limitations. As shown above, the term program can be read to read upon the procedures to be followed. As such, the Applicant is reading the term too narrowly and the rejection stands.

Applicant further alleges:

> "For example, with respect to the rejection of dependent claim 7, in item 8 on page 4 the Examiner takes official notice that, allegedly, "composite audio and video signals are well known in the art." If the rejection of claim 7 is to be maintained, the Examiner is respectfully requested to cite a reference in support of his position as required under MPEP 2144.03 or, if the Examiner is relying upon facts within his personal knowledge, to file an affidavit establishing those facts pursuant to MPEP 2144.03."

Examiner has noted this argument and provides the following source to support the official notice: Newlin (U.S. Patent 5,877,821). Newlin discloses forming a composite audio/video signal within the abstract. As such, the official notice is proper and the rejection stands.

Applicant further alleges:

> "Independent Claim 20 is directed to a computer readable medium encoded with a program that, when executed, performs the method of claim 1. Accordingly, for reasons similar to those discussed above in claim 1, claim 20 patentably distinguishes over Kiltz and is in condition for allowance. Moreover, it is noteworthy that the Office Action fails to point to any teaching or suggestion in any of the cited references of a "computer readable medium encoded with a program that, when executed, performs a method for executing a lighting program to control a plurality of light emitting diode."

Examiner has considered this argument and does not find it persuasive. Referring to MPEP 2144.07, the computer readable medium encoded with the program is merely art-recognized suitability for an intended purpose. Implementing the method within a computer or computer readable medium via a program would still produce the same results and thus would have been obvious. For example, in U.S. 5,761, 385, Quinn teaches incorporating hardware into a computer readable medium to implement a method; col. 3 lines 34 – 36. Furthermore, it was shown within the action regarding the

rejection of claim 35 that integrating a circuit with a program is well known and would be desirable. As such the rejection stands.

Applicant further alleges:

> "In any case, nowhere in the reference does Kiltz disclose or suggest generating a control signal "at a time that is prior to the first time during the duration of the audio input," wherein the control signal is based at least in part on at least one first characteristic of the audio input so that "the light show anticipates changes in the audio input" as recited in claim 92 (emphasis added). Rather, Kiltz merely receives analog signals from a music source and decodes the signals into binary form (col. 7, lines 6-19). These binary signals correspond to a particular visual color which is displayed accordingly in real time (col. 7, lines 20-50). At no point does Kiltz disclose or suggest two time intervals (e.g., a first time and a time prior to the first time) at which any particular signals are decoded, generated, or otherwise processed, to facilitate the generation of colored light to anticipate a change in the audio input. In view of the foregoing, claim 92 patentably distinguishes over Kiltz and is in condition for allowance."

Examiner has considered this argument and does not find it persuasive. Applicant is primarily arguing that Kiltz does not teach the limitations of "generating a control signal at a time that is prior to the first time during the duration of the audio input" or "the light show anticipates changes in the audio input".

Applicant fails to note that Kiltz inherently teaches of an audio signal which is continuous. The fact that the signal is continuous inherently teaches processing of the signal at multiple times. For instance, as the audio signal is played, it is constantly changing and the decode logic outputs signals according to the signal at the present time. See col. 4 lines 43 – 55 for further clarification. Turing to applicant's arguments, at the first second the signal is introduced to Kiltz's system, control signals are sent.

This continues as long as an audio signal is introduced to the system. Now, since control signals are generated continuously, defining them in relation to each other would obvious since it would just be merely applying a name. Assume, for instance that a 2 second continuous audio signal is introduced to the Kiltz system with two points, point A occurs at 1 second and point B occurs at 2 seconds. The system will produce a control signal at point A and point B. The control signal generated at point A is **prior** to the control signal generated at point B (emphasis added). As such, the art cited in the prior rejection does in fact teach "generating a control signal at a time that is prior to the first time during the duration of the audio input" as claimed by applicant.

Further, applicant asserts Kiltz does not teach "the light show anticipates changes in the audio input". However, it appears to the examiner that Applicant is reading the term anticipate too narrowly. AskOxford.com provides one definition for anticipate as "act or happen before". As such, Kiltz system does act before changes in the audio input. As shown above, they system acts at point A and then again at point B, in other words it acts before change. As such the rejection stands.

Applicant further alleges:

> "The rejection of claim 35 cannot be maintained and is improper, as neither Kiltz nor Drago discloses at least one controller that is coupled to both an audio decoder and at least one storage medium, as required by claim 35. Hence, no combination of elements from Kiltz or Drago can meet this limitation - rather, the controller recited in claim 35 is completely missing from both of the cited references. Therefore, the Office Action fails to meet at least one of the criteria for establishing a prima facie obviousness rejection, pursuant to MPEP j2143; namely, the cited Kiltz and Drago references fail to teach or suggest all of the limitations of claim 35."

> "In particular, on page 11 of the Office Action, the Examiner concedes that "Kiltz does not explicitly state at least one storage medium to store the lighting program." Accordingly, if Kiltz fails to disclose or suggest at least one storage medium, as the Office Action correctly concludes, then Kiltz also necessarily fails to disclose or suggest at least one controller coupled to at least one storage medium, as required by claim 35."
>
> "Turning now to Drago, in a similar manner, the Applicants respectfully submit that Drago fails to disclose or suggest an audio decoder. Accordingly, if Drago fails to disclose or suggest an audio decoder, then Drago also necessarily fails to disclose or suggest at least one controller coupled to an audio decoder, as required by claim 35."
>
> "In view of the foregoing, neither Kiltz nor Drago discloses or suggests at least one controller coupled to an audio decoder and at least one storage medium, as recited in claim 35."

Examiner has noted applicants argument and does not consider it persuasive. Applicant suggests that neither Kiltz nor Drago discloses the limitations of claim 35. However, Applicant has failed to note that the combination of Kiltz and Drago does in fact disclose at least one controller that is coupled to both an audio decoder and at least one storage medium. As shown in the previous action Kiltz discloses an audio decoder (i.e. the decode logic; fig 1 element 70) coupled to a controller (i.e. activation of the analog switches; Fig. 1 element 80). As also stated in the previous action, Kiltz does not disclose one storage medium to store the lighting program. However, Drago, contrary to what applicant alleges, does in fact teach of a storage medium (i.e. the program memory circuit of Fig. 1) which is coupled to a light control circuit of fig. 1. The combination would have replaced the light control circuit of fig. 1 with the analog switches of Kiltz in Fig. 1. This combination would have provided a controller coupled to a storage medium (i.e. the program memory circuit coupled to the analog circuits) and a

controller coupled to an audio decoder (i.e. the decode logic coupled to the analog switches). As such the rejection stands.

Applicant further alleges:

> "The Office Action contends that, allegedly, both Kiltz and Drago "alter lighting effects based upon audio calculations." Applicants respectfully disagree with this characterization. The Office Action points to no specific teaching or suggestion in Drago of any component or components configured to "alter lighting effects based upon audio calculations" more specifically, the Office Action fails to point to any audio decoder in Drago."
>
> "In Drago, lights are not controlled based on audio signals. Rather, the generation of audio and visual effects in Drago are controlled in parallel, simultaneously, by a central program control circuit. This circuit generates signals to simultaneously control, in parallel, sound and light; in Drago, the light is not controlled in response to first processing, decoding, or otherwise analyzing, an audio signal (Drago, col. 5, line 41- col. 6, line 13)."
>
> "In particular, with reference to Drago's Fig. 1, the program control circuit 12 includes means for producing sound control signals and light control signals (col. 5, lines 41-45). The frequency of a system clock 14 in the control circuit 12 is controllable by a user so as to set a tempo of music emanating from a speaker 26, as well as the speed of light patterns produced by light sources 32 (col. 5, lines 45-54). The control circuit 12 also includes a program memory circuit 16 for storing audio programs and light source programs in parallel (col. 5, lines 55-56). Pulses generated by the system clock 14, at a user controlled frequency, are received by the memory circuit 16, which then simultaneously produces sound control signals and light control signals in accordance with the audio and light programs stored in parallel (col. 6, lines 1-5, emphasis added)."
>
> "Accordingly, in Drago, the light control signals and the light programs are not executed or generated as a result of, or in response to, some prior processing or decoding of an audio signal; rather, in Drago, light and sound are controlled in parallel simultaneously, in response to a user selected tempo or speed, to provide synchronized light and sound effects. Hence, there is no need for an audio decoder in Drago and, in fact, Drago does not disclose or suggest one."

Examiner has noted this argument and does not consider it persuasive. Examiner agrees Applicant's allegation that Drago does not directly process audio signals to control lights. However, Applicant has cited the exact text in Drago where this is disclosed. Applicant cites col. 5 lines 56 – 59 in which Drago discloses that audio programs and light sources programs are stored in parallel. Further turning to Fig. 11, light program bits are stored with sound program bits. When a specific sound occurs, a specific lighting sequence is produced. Applicant is correct with respect to the system not processing directly in response to the audio. However, to correlate these sounds with the correct lights as shown in Fig. 12, an inherent processing must have occurred. The processing in this instance would be the programmer deciding what light to apply to what beat or sound. As this is applied and programmed, there is an inherent calculation taking place. As such, the argument is not persuasive and the rejection stands.

Applicant further alleges:

> "Neither Kiltz nor Drago, respectively or in combination, discloses or suggests all of the limitations of claims 57 and 64. First, as discussed above, Kiltz does not disclose any programs of any kind for execution by a processor. Second, Drago fails to disclose any feature, including a lighting program, related to the analysis of an audio input to determine at least one characteristic of the audio input. For at least the foregoing reasons, claims 57 and 64 patentably distinguish over the combination of cited references, and are in condition for allowance. Therefore, the rejections of these claims should be withdrawn."

Examiner has noted this argument and does not find it persuasive for the same reasons stated above regarding the arguments regarding claim 20.

Applicant further alleges:

> "Claim 78, like claim 35, recites, inter alia, at least one controller coupled to an audio decoder and at least one storage medium. Accordingly, at least for reasons similar to those discussed above in connection with claim 35, claim 78 patentably distinguishes over the combination of cited references and is in condition for allowance."
>
> "Claims 79-85 depend from claim 78 and are allowable based at least upon their dependency."

Examiner has noted this argument and does not find it persuasive for the same reasons stated above regarding the arguments regarding claim 35.

Applicant further alleges:

> "Claim 86 is directed to a method for executing a lighting program, comprising, inter alia, receiving an audio input and an input from a graphical user interface, and generating at least one control signal based at least in part on at least one characteristic of the audio input and the input from the graphical user interface. Claim 90 recites, inter alia, providing a graphical user interface (GUI) that displays information representative of a plurality of LEDS."
>
> "Both Kiltz and Drago are completely silent with respect to a graphical user interface. Kiltz, as conceded by the Examiner, does not have the capacity to store any graphical information (there is no storage device), much less display any information on a graphical user interface. The invention disclosed in Drago is incorporated into articles of clothing, such as a pair of shoes. Drago makes no mention or suggestion whatsoever of equipping shoes or other articles of clothing with a graphic user interface. Accordingly, no combination of these references can render claim 86 unpatentable; thus, the rejection of claim 86 should be withdrawn."

Examiner has noted this argument and does not find it persuasive. As shown in the previous office action Drago does in fact disclose a user interface. Again, see further column 8 lines 20 – 23. Drago discloses a user interface which could be a series

of switches or a key pad. This is in fact a graphical user interface and reads upon these claimed limitations. As such the rejection stands.

Applicant further alleges:

> "Claim 87 recites, inter alia, executing, on the computer, a lighting program to generate control signals to control a plurality of light emitting diodes and, during execution of the lighting program, generating at least one of the control signals based at least in part on the at least one characteristic of the audio input. Again, Kiltz fails to disclose or suggest a lighting program, and Drago does not control any signal, during execution of a lighting program, based at least in part on at least one characteristic of an audio input. For at least the foregoing reasons, claim 87 patentably distinguishes over the combination of cited references and is in condition for allowance. Therefore, the rejection of claim 87 should be withdrawn."

Examiner has noted this argument and does not find it persuasive for the same reasons stated above regarding the arguments regarding claim 1.

Applicant further alleges:

> "Claim 91 is directed to a method for executing a lighting program to control a plurality of light emitting diodes (LEDs). The method comprises acts of : (A) receiving an audio input; (B) analyzing the audio input to determine at least one characteristic of the audio input; (C) storing information related to the at least one characteristic of the audio input; (D) executing the lighting program, after completion of the act (C), to generate control signals to control the plurality of LEDS; and (E) during execution of the lighting program in the act (D), reading the stored information and generating at least one of the control signals based at least in part on the at least one characteristic of the audio input."
>
> "Neither Kiltz nor Drago discloses or suggests all of the limitations of the method of claim 91. For example, neither reference discloses or suggests the acts (C), (f8, and (E) recited in claim 91. For at least this reason, claim 91 is in condition for allowance, and the rejection of claim 91 should be withdrawn."

Examiner has noted this argument and does not find it persuasive. Applicant merely suggests that these limitations are not disclosed in the reference and does not provide sufficient evidence disputing the citations stated in the previous reference. Again, as shown in the previous rejection, element (C) is disclosed in col. 6 lines 3-5 of Drago and elements (D) and (E) are disclosed in col. 6 lines 3 – 4.

Applicant's arguments, filed 13 June 2005, with respect to the rejection(s)of claim(s) 51, 56 and 71 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1 – 3, 5 – 7, 9 – 17, 20 - 22, 24, 25, 27 – 32, 92 and 93 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiltz (U.S. Patent 5,191,319).

Regarding **Claims 1, 20 and 92**, Kiltz discloses a decoder that receives a digital audio input (fig. 1 element 70) (i.e. receiving an audio input in digital form), the decoder operates on the multiple binary signal to divide the audio frequency spectrum represented by these signals into a plurality of contiguous frequency bands (col. 4 lines 43 – 46) (i.e. digitally processing the audio input to determine at least one characteristic of the audio input) and activation of one or more lamp driver circuits to activate a plurality of colored light sources (LEDs) according to a preselected assignment of light color to each audio frequency band defined by the decode logic (col. 4 lines 56 – 65). Kiltz uses colored light sources but does not explicitly disclose LEDs as these sources. It would have been obvious to one of ordinary skill in the art to use LEDs as the colored light sources. LEDs are merely one of many various implementations of colored light sources and their use would not require inventive skill (also see Drago's use of LEDs in a similar invention, US 5,461,188 as cited in the IDS) (i.e. executing the lighting program to generate control signals to control the plurality of LEDs and during execution of the lighting program in the act (C), generating at least one of the control signals based at least in part on the at least one characteristic of the audio input).

Regarding **Claims 2 and 21**, in addition to the elements stated above regarding claims 1 and 20, Kiltz further discloses receiving an analog music signal (Fig. 1 element 2) and converting it to a digital signal with an analog to digital converter (Fig. 1 element 60) (i.e. wherein the act (A) includes an act of receiving the audio input in analog form and converting the audio input to digital form).

Regarding **Claims 3 and 22**, in addition to the elements stated above regarding claims 1 and 20, Kiltz further discloses the decoder operates on the multiple binary signal to divide the audio frequency spectrum represented by these signals into a plurality of contiguous frequency bands (col. 4 lines 43 – 46) (i.e. wherein the act (B) includes an act of performing a frequency transformation of the audio input to determine an activity level within at least one frequency band, and wherein the at least one characteristic of the audio input relates to the activity level within the at least one frequency band).

Regarding **Claims 5, and 24**, in addition to the elements stated regarding claims 1 and 20, Kiltz further discloses circuits responsive to audio signal amplitude cause the display brightness to vary (abstract) (i.e. wherein the act (b) includes an act of determining a volume of the audio input, and wherein the at least one characteristic of the audio input relates to the volume).

Regarding **Claims 6 and 25**, in addition to the elements stated above regarding claims 1 and 20, Kiltz further discloses each lamp driver controls the brightness output of a single light source in accordance with the audio amplitude envelope signal (col. 4 lines 57 – 60) (i.e. wherein the act (B) includes an act of determining an intensity of the audio input, and wherein the at least on characteristic of the audio input relates to the intensity).

Regarding **Claim 7**, in addition to the elements stated above regarding claim 1, Kiltz further discloses that the music source can be any means by which audio information is translated into electronic signals (col. 3 lines 26 – 31). Kiltz does not explicitly state the audio is part of a video signal, however, Examiner takes official notice that composite audio and video signals are well known in the art. Moreover, the source of the audio does not affect the scope of the invention and thus is viewed as intended use (i.e. wherein the act (A) includes an act of receiving the audio as part of an audio/video signal).

Regarding **Claims 9 and 27**, in addition to the elements stated above regarding claims 1 and 20, Kiltz further discloses each lamp driver controls the brightness output of a single light source in accordance with the audio amplitude envelope signal and the audio frequency band selected by the decode logic and activation of one or more lamp driver circuits to activate a plurality of colored light sources (LEDs) according to a preselected assignment of light color to each audio frequency band defined by the decode logic (col. 4 lines 49 – 65) (i.e. wherein the act (C) includes an act of executing a lighting program having at least one variable that has an input value, and wherein the act (D) includes an act of providing the at least one characteristic of the audio input as the input value of the at least one variable).

Regarding **Claims 10 and 28**, in addition to the elements stated above regarding claims 1 and 20, Kiltz discloses a table of properties disclosing which lights are on when a certain frequency band is present (Fig. 6). It is obvious that as the frequency changes, so do the lighting schemes (i.e. wherein the lighting program is a first lighting program and wherein the method further includes an act of, during execution of the first lighting program in the act (C), switching to execution of a second lighting program in response to the at least one characteristic of the audio input).

Regarding **Claims 11 and 29**, in addition to the elements stated above regarding claims 1 and 20, Kiltz further discloses each lamp driver controls the brightness output of a single light source in accordance with the audio amplitude envelope signal (col. 4 lines 57 – 60) (i.e. during execution of the lighting program in the act (C), assigning an effect to at least one of the plurality of LEDs based at least in part on the at least one characteristic of the audio input).

Regarding **Claims 12 and 30**, in addition to the elements stated above regarding claims 1 and 20, Kiltz further discloses each lamp driver controls the brightness output of a single light source in accordance with the audio amplitude envelope signal (col. 4 lines 57 – 60) (i.e. during execution of the lighting program in the act (C), determining a parameter of at least one effect assigned to at least one of the plurality of LEDs based at least in part on the at least one characteristic of the audio input).

Regarding **Claim 13**, in addition to the elements stated above regarding claim 1, Kiltz further discloses a gain to brightness transfer characteristic (fig. 2B) and a Frequency to color table (fig. 6) (i.e. wherein the method further includes an act of providing a cue table that identifies various actions to be taken during execution of the lighting program in response to at least two inputs received at the cue table, and wherein the act (D) includes acts of: providing at least two characteristics of the audio input as inputs to the cue table) and each lamp driver controls the brightness output of a single light source in accordance with the audio amplitude envelope signal and the audio frequency band selected by the decode logic and activation of one or more lamp driver circuits to activate a plurality of colored light sources (LEDs) according to a preselected assignment of light color to each audio frequency band defined by the decode logic (col. 4 lines 49 – 65) (i.e. during execution of the lighting program, generating at least one of the control signals in response to an output of the cue table).

Regarding **Claim 14**, in addition to the elements stated above regarding claim 1, Kiltz further discloses a gain to brightness transfer characteristic (fig. 2B) (i.e. wherein the lighting program performs a mapping from the at least one characteristic of the audio input to the at least one of the control signals), a gain to brightness transfer characteristic (fig. 2B) and a Frequency to color table (fig. 6) (i.e. wherein the method further includes an act of providing a cue table that identifies various actions to be taken during execution of the lighting program in response to at least two inputs received at the cue table, and wherein the act (D) includes acts of: providing at least two

characteristics of the audio input as inputs to the cue table) and each lamp driver controls the brightness output of a single light source in accordance with the audio amplitude envelope signal and the audio frequency band selected by the decode logic and activation of one or more lamp driver circuits to activate a plurality of colored light sources (LEDs) according to a preselected assignment of light color to each audio frequency band defined by the decode logic (col. 4 lines 49 – 65) (i.e. during execution of the lighting program, changing the mapping performed by the lighting program in response to an output of the cue table).

Regarding **Claims 15 and 93**, in addition to the elements stated above regarding claims 1 and 20, Kiltz further discloses a Frequency to color table with the frequency divided into ranges (fig. 6) (i.e. wherein at least one characteristic of the audio signal includes at least first and second characteristics) the audio frequency band selected by the decode logic and activation of one or more lamp driver circuits to activate a plurality of colored light sources (LEDs) according to a preselected assignment of light color to each audio frequency band defined by the decode logic (col. 4 lines 49 – 65) (i.e. wherein the lighting program performs a mapping function from the first characteristic of the audio input to the at least one of the control signals and wherein the act (D) includes an act of, during execution of the lighting program in the act (C), changing the mapping function performed by the lighting program in response to the second characteristic of the audio input).

Regarding **Claims 16 and 31**, in addition to the elements stated above regarding claims 15 and 93, Kiltz discloses a table of properties disclosing which lights are on when a certain frequency band is present (Fig. 6). It is obvious that as the frequency changes, so do the lighting schemes (i.e. wherein the lighting program is a first lighting program and wherein the method further includes an act of, during execution of the first lighting program in the act (C), switching to execution of a second lighting program in response to the at least one characteristic of the audio input).

Regarding Claims **17 and 32**, in addition to the elements stated above regarding claims 1 and 20, Kiltz further discloses a decoder that operates on the multiple binary signal to divide the audio frequency spectrum represented by these signals into a plurality of contiguous frequency bands (col. 4 lines 43 – 46) (i.e. wherein the act (B) includes an act of digitally processing the audio input to determine a plurality of characteristics of the audio input) and activation of one or more lamp driver circuits to activate a plurality of colored light sources (LEDs) according to a preselected assignment of light color to each audio frequency band defined by the decode logic (col. 4 lines 56 – 65) (i.e. wherein the act (D) includes an act of, during execution of the lighting program in the act (C), generating the control signals based at least in part on the plurality of characteristics of the audio input).

Claims 4, 18, 19, 23, 33 – 40, 42 – 51, 53 – 60, 62 – 67, 69 –74, 76 - 82 and 84 - 91 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiltz (U.S. Patent 5,191,319) in view of Drago (U.S. Patent 5,461,188).

Regarding **Claims 4, 23 and 38**, in addition to the elements stated regarding claims 1, 20 and 35, Kiltz discloses varying a lighting display based upon various audio properties (abstract). Kiltz does not disclose using the beat as an audio property. Drago discloses a system includes a multiplicity of light sources such as light emitting diodes (LEDs) that may be of multiple colors and illuminate according to a program executed in synchrony with the rhythmic beat of either an independent internal or external music or sound program (col. 2 lines 49 – 58) (i.e. wherein the act (B) includes an act of determining a beat of the audio input, and wherein the at least one characteristic of the audio input relates to the beat). It would have been obvious to one of ordinary skill in the art at the time of the invention to use Drago's beat illumination on Kiltz's audio lighting display. Both inventions alter lighting effects based upon audio calculations and adding a feature such as Drago's beat does not involve the excise of inventive skill.

Regarding **Claims 18, 33, 49, 59, 66, 73 and 81**, in addition to the elements stated above regarding claims 1, 20, 35, 57, 64, 71 and 78, Drago discloses a system includes a multiplicity of light sources such as light emitting diodes (LEDs) that may be of multiple colors and illuminate according to a program executed in synchrony with the rhythmic beat of either an independent internal or external music or sound program (col.

2 lines 49 – 58) with a user interface circuit (fig. 1 element 20) (i.e. wherein the act (C) includes an act of executing the lighting program on a device coupled to at least one user interface), Through the user interface, via an interface signal, the sound and light programs to be processed by the CPU, can be selected, edited or additional programs added until the capacity of the program memory circuit is exceeded (col. 8 lines 20 – 25) (i.e. wherein the method further includes an act of, during execution of the lighting program in act (C), generating at least one of the control signals based at least in part on user input provided via the at least one user interface). It would have been obvious to one of ordinary skill in the art at the time of the invention to use Drago's interface on Kiltz's audio lighting display. Both inventions alter lighting effects based upon audio calculations and adding a feature such as Drago's interface to adjust the parameters of the lighting output does not involve the excise of inventive skill.

Regarding **Claims 19, 34, 50, 55, 60, 67, 74 and 82**, in addition to the elements stated regarding claims 1, 20, 35, 51, 57, 64, 71 and 78, Kiltz further discloses a gain to brightness transfer characteristic (fig. 2B) (i.e. wherein the lighting program performs a mapping function from the at least one characteristic of the audio input to the at least one of the control signals). Kiltz does not disclose a user interface. Drago discloses a system includes a multiplicity of light sources such as light emitting diodes (LEDs) that may be of multiple colors and illuminate according to a program executed in synchrony with the rhythmic beat of either an independent internal or external music or sound program (col. 2 lines 49 – 58) with a user interface circuit (fig. 1 element 20) (i.e.

wherein the act (C) includes an act of executing the lighting program on a device coupled to at least one user interface) and through the user interface, via an interface signal, the sound and light programs to be processed by the CPU, can be selected, edited or additional programs added until the capacity of the program memory circuit is exceeded (col. 8 lines 20 – 25) (i.e. wherein the method further includes an act of, changing the mapping function performed by the lighting program in response to an input received from the user interface). Motivation to combine these elements is given above regarding claim 19.

Regarding **Claim 35**, Kiltz discloses a decoder that receives a digital audio input (fig. 1 element 70) (i.e. at least one input to receive an audio input), the decoder operates on the multiple binary signal to divide the audio frequency spectrum represented by these signals into a plurality of contiguous frequency bands (col. 4 lines 43 – 46) (i.e. an audio decoder to digitally process the audio input to determine at least one characteristic of the audio input) and activation of one or more lamp driver circuits to activate a plurality of colored light sources (LEDs) according to a preselected assignment of light color to each audio frequency band defined by the decode logic (col. 4 lines 56 – 65). Kiltz uses colored light sources but does not explicitly disclose LEDs as these sources. It would have been obvious to one of ordinary skill in the art to use LEDs as the colored light sources. LEDs are merely one of many various implementations of colored light sources and their use would not require inventive skill (also see Drago's use of LEDs in a similar invention, US 5,461,188 as cited in the IDS)

(i.e. at least one controller, coupled to the audio decoder and the at least one storage medium, to execute the lighting program to generate control signals to control the plurality of LEDs, wherein the at least one controller generates at least one of the control signals based at least in part on the at least one characteristic of the audio input). Kiltz does not explicitly state at least one storage medium to store the lighting program. Drago discloses a program memory circuit (fig. 1 element 16) (i.e. at least one storage medium to store the lighting program). It would have been obvious to one of ordinary skill in the art at the time of the invention to use Drago's program memory circuit on Kiltz's audio lighting display. Both inventions alter lighting effects based upon audio calculations and adding a feature such as Drago's program memory circuit to store the parameters of intensity and frequency changes would have been obvious. Integrating into one small circuit with a program is well known in the art and would be desirable to reduce the circuitry required for Kiltz thereby reducing the size and cost of production.

Regarding **Claim 51**, Kiltz discloses a method for executing a lighting program to control a plurality of lights (i.e. lamp drivers and analog switches; Fig1 elements 80 and 90) and a second program that processes an audio input to determine at least one characteristic of the audio input (i.e. decode logic; fig. 1 element 70), the method comprising the acts of:

(A) receiving information from the second program relating to the at least one characteristic of the audio input (i.e. the analog switches receiving information from the decode logic; col. 4 lines 43 – 55);

(B) executing the lighting program to generate control signals to control the plurality of LEDs (i.e. the lamp drivers are selectively activated based upon the information from the decode logic and the analog switches; col. 4 lines 43 – 65);

(C) during execution of the lighting program in the act (B), generating at least one of the control signals based at least in part on the at least one characteristic of the audio input received from the first program (i.e. the lights are controlled with brightness and frequency bands; col. 4 lines 56 – 65).

Kiltz does not explicitly disclose a computer readable medium encoded with first and second programs that are executed on a processor or the lights as LEDs.

Kiltz uses colored light sources but does not explicitly disclose LEDs as these sources. It would have been obvious to one of ordinary skill in the art to use LEDs as the colored light sources. LEDs are merely one of many various implementations of colored light sources and their use would not require inventive skill

Drago discloses a computer readable medium (i.e. a program memory circuit fig. 1 element 16).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use Drago's program memory circuit on Kiltz's audio lighting display. Both inventions alter lighting effects based upon audio calculations and adding a feature such as Drago's program memory circuit to store the parameters of intensity and frequency

changes would have been obvious. Integrating into one small circuit with a program is well known in the art and would be desirable to reduce the circuitry required for Kiltz thereby reducing the size and cost of production.

Regarding **Claim 71**, Kiltz does not disclose receiving an input from the at least one timer or generating control signals at least in part on the input from the at least one timer.

Drago discloses a system clock (fig. 1 element 14) (i.e. an input from a timer and generating the control signals based upon a timer). Motivation to combine Kiltz and Drago is given above regarding claim 35.

Regarding **Claim 36**, in addition to the elements stated above regarding claim 35, Kiltz further discloses receiving an analog music signal (Fig. 1 element 2) and converting it to a digital signal with an analog to digital converter (Fig. 1 element 60) (i.e. an analog to digital converter, coupled to the at least one input, to convert the audio input from analog form to digital form).

Regarding **Claim 37**, in addition to the elements stated above regarding claim 35, Kiltz further discloses the decoder operates on the multiple binary signal to divide the audio frequency spectrum represented by these signals into a plurality of contiguous frequency bands (col. 4 lines 43 – 46) (i.e. wherein the audio decoder performs a frequency transformation of the audio input to determine an activity level within at least

one frequency band, and wherein the at least one characteristic of the audio input relates to the activity level within the at least one frequency band).

Regarding **Claim 39**, in addition to the elements stated regarding claim 35, Kiltz further discloses circuits responsive to audio signal amplitude cause the display brightness to vary (abstract) (i.e. wherein the decoder determines a volume of the audio input, and wherein the at least one characteristic of the audio input relates to the volume).

Regarding **Claim 40**, in addition to the elements stated above regarding claim 35, Kiltz further discloses each lamp driver controls the brightness output of a single light source in accordance with the audio amplitude envelope signal (col. 4 lines 57 – 60) (i.e. wherein the audio decoder determines an intensity of the audio input, and wherein the at least one characteristic of the audio input relates to the intensity).

Regarding **Claims 42 and 53**, in addition to the elements stated above regarding claims 35 and 51, Kiltz further discloses each lamp driver controls the brightness output of a single light source in accordance with the audio amplitude envelope signal and the audio frequency band selected by the decode logic and activation of one or more lamp driver circuits to activate a plurality of colored light sources (LEDs) according to a preselected assignment of light color to each audio frequency band defined by the decode logic (col. 4 lines 49 – 65) (i.e. wherein the lighting program has at least one

variable that has an input value, and wherein the at least one controller provides the at least one characteristic of the audio input as the input value of the at least one variable).

Regarding **Claim 43**, in addition to the elements stated above regarding claim 35, Kiltz discloses a table of properties disclosing which lights are on when a certain frequency band is present (Fig. 6). It is obvious that as the frequency changes, so do the lighting schemes (i.e. wherein the lighting program is a first program, wherein the at least one storage medium further stores a second lighting program, and wherein the at least one controller, during execution of the first lighting program, switches to the execution of the second lighting program in response to the at least one characteristic of the audio input).

Regarding **Claim 44**, in addition to the elements stated above regarding claim 35, Kiltz further discloses each lamp driver controls the brightness output of a single light source in accordance with the audio amplitude envelope signal (col. 4 lines 57 – 60) (i.e. wherein the at least one controller, during execution of the lighting program, assigns an effect to at least one of the plurality of LEDs based at least in part on the at least one characteristic of the audio input).

Regarding **Claim 45**, in addition to the elements stated above regarding claim 35, Kiltz further discloses each lamp driver controls the brightness output of a single light source in accordance with the audio amplitude envelope signal (col. 4 lines 57 –

60) (i.e. wherein the at least one controller, during execution of the lighting program, determines a parameter of at least one effect assigned to at least one of the plurality of LEDs based at least in part on the at least one characteristic of the audio input).

Regarding **Claim 46**, in addition to the elements stated above regarding claim 1, Kiltz further discloses a gain to brightness transfer characteristic (fig. 2B) and a Frequency to color table (fig. 6) (i.e. wherein the at least one characteristic of the audio signal includes at least first and second characteristics, wherein the method further includes an act of providing a cue table that identifies various actions to be taken during execution of the lighting program in response to at least two inputs received at the cue table, and wherein the act (D) includes acts of: providing at least two characteristics of the audio input as inputs to the cue table) and each lamp driver controls the brightness output of a single light source in accordance with the audio amplitude envelope signal and the audio frequency band selected by the decode logic and activation of one or more lamp driver circuits to activate a plurality of colored light sources (LEDs) according to a preselected assignment of light color to each audio frequency band defined by the decode logic (col. 4 lines 49 – 65) (i.e. during execution of the lighting program, generating at least one of the control signals in response to an output of the cue table).

Regarding **Claims 47, 54, 58, 65, 72 and 80**, in addition to the elements stated regarding claims 35, 51, 57, 64, 71 and 78, Kiltz further discloses a Frequency to color table with the frequency divided into ranges (fig. 6) (i.e. wherein at least one

characteristic of the audio signal includes at least first and second characteristics) the audio frequency band selected by the decode logic and activation of one or more lamp driver circuits to activate a plurality of colored light sources (LEDs) according to a preselected assignment of light color to each audio frequency band defined by the decode logic (col. 4 lines 49 – 65) (i.e. wherein the lighting program performs a mapping function from the first characteristic of the audio input to the at least one of the control signals and wherein the at least one of controller, during execution of the lighting program, changes the mapping function performed by the lighting program in response to the second characteristic of the audio input).

Regarding **Claim 48**, in addition to the elements stated above regarding claim 35, Kiltz discloses a table of properties disclosing which lights are on when a certain frequency band is present (Fig. 6). It is obvious that as the frequency changes, so do the lighting schemes (i.e. wherein the lighting program is a first lighting program, wherein the at least one storage medium further stores a second lighting program, and wherein the at least one controller, during execution of the first lighting program, switches to execution of a second lighting program in response to the at least one characteristic of the audio input).

Regarding **Claims 57 and 64**, Kiltz discloses a decoder that receives a digital audio input (fig. 1 element 70) (i.e. receiving an audio input in digital form), the decoder operates on the multiple binary signal to divide the audio frequency spectrum

represented by these signals into a plurality of contiguous frequency bands (col. 4 lines 43 – 46) (i.e. digitally processing the audio input to determine at least one characteristic of the audio input) and activation of one or more lamp driver circuits to activate a plurality of colored light sources (LEDs) according to a preselected assignment of light color to each audio frequency band defined by the decode logic (col. 4 lines 56 – 65). Kiltz uses colored light sources but does not explicitly disclose LEDs as these sources. It would have been obvious to one of ordinary skill in the art to use LEDs as the colored light sources. LEDs are merely one of many various implementations of colored light sources and their use would not require inventive skill (also see Drago's use of LEDs in a similar invention, US 5,461,188 as cited in the IDS) (i.e. executing the lighting program to generate control signals to control the plurality of LEDs and during execution of the lighting program in the act (C), generating at least one of the control signals based at least in part on the at least one characteristic of the audio input). Kiltz also does not explicitly disclose receiving an input from a timer and generating the control signals based upon a timer. Drago discloses a system clock (fig. 1 element 14) (i.e. an input from a timer and generating the control signals based upon a timer). Motivation to combine Kiltz and Drago is given above regarding claim 35.

Regarding **Claims 62, 69, 76 and 84**, in addition to the elements stated above regarding claims 57, 64, 71 and 78, Kiltz further discloses a Frequency to color table with the frequency divided into ranges (fig. 6), the audio frequency band selected by the decode logic and activation of one or more lamp driver circuits to activate a plurality of

colored light sources (LEDs) according to a preselected assignment of light color to each audio frequency band defined by the decode logic (col. 4 lines 49 – 65) (i.e. an act of executing a lighting program having at least first and second variables that each has an input value, and wherein the act (D) includes an act of providing the at least one characteristic of the audio input as the input value of the first variable). Kiltz does not disclose the second variable as an input from the timer. Drago discloses a pulse from the system clock sequences the memory circuit that then simultaneously produces the sound control signals and the light control signals in accordance with the audio and light programs (col. 6 lines 1 – 5) (i.e. the input from the at least one timer as the input value of the second variable. Motivation to combing Kiltz and Drago is given above regarding claim 35.

Regarding **Claims 63, 70, 77 and 85**, in addition to the elements stated above regarding claims 57, 64, 71 and 78 Drago discloses a pulse from the system clock sequences the memory circuit that then simultaneously produces the sound control signals and the light control signals in accordance with the audio and light programs (col. 6 lines 1 – 5) (i.e. wherein the lighting program is a first lighting program, and wherein the method further includes an act of, during execution of the first lighting program in the act (C), switching to execution of a second lighting program in response to the input from the at least one timer).

Regarding **Claim 78**, Kiltz discloses a decoder that receives a digital audio input (fig. 1 element 70) (i.e. at least one input to receive an audio input), the decoder operates on the multiple binary signal to divide the audio frequency spectrum represented by these signals into a plurality of contiguous frequency bands (col. 4 lines 43 – 46) (i.e. an audio decoder to digitally process the audio input to determine at least one characteristic of the audio input) and activation of one or more lamp driver circuits to activate a plurality of colored light sources (LEDs) according to a preselected assignment of light color to each audio frequency band defined by the decode logic (col. 4 lines 56 – 65). Kiltz uses colored light sources but does not explicitly disclose LEDs as these sources. It would have been obvious to one of ordinary skill in the art to use LEDs as the colored light sources. LEDs are merely one of many various implementations of colored light sources and their use would not require inventive skill (also see Drago's use of LEDs in a similar invention, US 5,461,188 as cited in the IDS) (i.e. at least one controller, coupled to the audio decoder and the at least one storage medium, to execute the lighting program to generate control signals to control the plurality of LEDs, wherein the at least one controller generates at least one of the control signals based at least in part on the at least one characteristic of the audio input). Kiltz does not explicitly state at least one storage medium to store the lighting program or a controller that bases signals off of a timer. Drago discloses a program memory circuit (fig. 1 element 16) (i.e. at least one storage medium to store the lighting program) and a pulse from the system clock sequences the memory circuit that then simultaneously produces the sound control signals and the light control signals in

accordance with the audio and light programs (col. 6 lines 1 – 5) (i.e. one of the control signals based at least in part on the at least one characteristic of the audio input and an input from at least one timer). It would have been obvious to one of ordinary skill in the art at the time of the invention to use Drago's program memory circuit on Kiltz's audio lighting display. Both inventions alter lighting effects based upon audio calculations and adding a feature such as Drago's program memory circuit to store the parameters of intensity and frequency changes would have been obvious. Integrating into one small circuit with a program is well known in the art and would be desirable to reduce the circuitry required for Kiltz thereby reducing the size and cost of production.

Regarding **Claim 79**, in addition to the elements stated above regarding claim 78, Drago discloses a pulse from the system clock sequences the memory circuit that then simultaneously produces the sound control signals and the light control signals in accordance with the audio and light programs (col. 6 lines 1 – 5) (i.e. at least one timer).

Regarding **Claim 86**, Kiltz discloses a decoder that receives a digital audio input (fig. 1 element 70) (i.e. at least one input to receive an audio input), the decoder operates on the multiple binary signal to divide the audio frequency spectrum represented by these signals into a plurality of contiguous frequency bands (col. 4 lines 43 – 46) (i.e. an audio decoder to digitally process the audio input to determine at least one characteristic of the audio input) and activation of one or more lamp driver circuits to activate a plurality of colored light sources (LEDs) according to a preselected

assignment of light color to each audio frequency band defined by the decode logic (col. 4 lines 56 – 65). Kiltz uses colored light sources but does not explicitly disclose LEDs as these sources. It would have been obvious to one of ordinary skill in the art to use LEDs as the colored light sources. LEDs are merely one of many various implementations of colored light sources and their use would not require inventive skill (also see Drago's use of LEDs in a similar invention, US 5,461,188 as cited in the IDS) (i.e. at least one controller, coupled to the audio decoder and the at least one storage medium, to execute the lighting program to generate control signals to control the plurality of LEDs, wherein the at least one controller generates at least one of the control signals based at least in part on the at least one characteristic of the audio input). Kiltz does not explicitly state a controller that bases signals off of a user interface. Drago discloses through a user interface, via an interface signal, the sound and light programs to be processed by the CPU, can be selected, edited or additional programs added (col. 8 lines 20 – 23) (i.e. an input from a graphical user interface and generating at least one of the control signals based in part on the input from the graphical user interface). It would have been obvious to one of ordinary skill in the art at the time of the invention to use Drago's program memory circuit on Kiltz's audio lighting display. Both inventions alter lighting effects based upon audio calculations and adding a feature such as Drago's program memory circuit to store the parameters of intensity and frequency changes would have been obvious. Integrating into one small circuit with a program is well known in the art and would be desirable to reduce the circuitry required for Kiltz thereby reducing the size and cost of production.

Regarding **Claim 87**, Kiltz discloses a decoder that operates on the multiple binary signal to divide the audio frequency spectrum represented by these signals into a plurality of contiguous frequency bands (col. 4 lines 43 – 46) (i.e. determining at least one characteristic of the audio input) and activation of one or more lamp driver circuits to activate a plurality of colored light sources (LEDs) according to a preselected assignment of light color to each audio frequency band defined by the decode logic (col. 4 lines 56 – 65). Kiltz uses colored light sources but does not explicitly disclose LEDs as these sources. It would have been obvious to one of ordinary skill in the art to use LEDs as the colored light sources. LEDs are merely one of many various implementations of colored light sources and their use would not require inventive skill (also see Drago's use of LEDs in a similar invention, US 5,461,188 as cited in the IDS) (i.e. executing the lighting program to generate control signals to control the plurality of LEDs and during execution of the lighting program in the act (C), generating at least one of the control signals based at least in part on the at least one characteristic of the audio input). Kiltz does not disclose processing, information indicative of an audio signal to generate a speaker-compatible signal indicative of the audio signal and transmitting the speaker compatible signal to a speaker to generate audible sound indicative of the audio signal). Drago discloses an audio transducer that passes audio program information to an audio transducer (fig. 1) (i.e. processing information indicative of an audio signal to generate a speaker compatible signal indicative of the audio signal and transmitting the speaker compatible signal to a speaker to generate audible sound

indicative of the audio signal). Kiltz does not disclose processing on a computer, however, it is obvious in the art to use a computer to perform various functions. It would have been obvious to one of ordinary skill in the art to implement the elements above within a standard personal computer. Motivation to combine Kiltz and Drago is given above regarding claim 35.

Regarding **Claim 88**, in addition to the elements stated above regarding claim 87, Kiltz discloses a music source (Fig. 1) (i.e. processing information received from another device, indicative of an audio signal to generate the speaker compatible signal).

Regarding **Claim 89**, in addition to the elements stated above regarding claim 87, Kiltz further discloses that the music source can be any means by which audio information is translated into electronic signals (col. 3 lines 26 – 31). It was well known at the time of the invention to store music on a computer readable medium and thus it would have been obvious to use this as a source of music for Kiltz's invention (i.e. an act of reading digital information, stored on a computer readable medium coupled to the computer, indicative of the audio signal to generate the speaker-compatible signal).

Regarding **Claim 90**, Drago discloses through this user interface 20, via an interface signal, the sound and light programs to be processed by the CPU, can be selected, edited or additional programs added (col. 8 lines 20 – 25) (i.e. providing a graphical user interface (GUI) that displays information representative of the plurality of

LEDs, a plurality of lighting effects to be assigned thereto the at least at least one characteristic of the audio input and selecting, based on at least one user input provided via the GUI, at least one of the plurality of lighting effects to correspond to at least one of the plurality of LEDs in response to the at least one characteristic of the audio input and creating a lighting program, based on the at least one user input, for generating control information for the plurality of LEDs).

Regarding **Claim 91**, Kiltz discloses receiving a music source (Fig. 1) (i.e. receiving an audio input), the decoder operates on the multiple binary signal to divide the audio frequency spectrum represented by these signals into a plurality of contiguous frequency bands (col. 4 lines 43 – 46) (analyzing the audio input to determine at least one characteristic of the audio input). Drago discloses storing audio and light program information (col. 6 lines 3 – 5) (i.e. storing information related to the at least one characteristic of the audio input) producing the sound control signals and the light control signals in accordance with the audio and light programs stored (col. 6 lines 3 – 4) (i.e. executing the lighting program, after completion of the act (C), to generate control signals to control the plurality of LEDs and during execution of the lighting program in act (D), reading the stored information and generating at lest one of the control signals based at least in part on the at least one characteristic of the audio input). Motivation to combine Kiltz and Drago is given above regarding claim 25.

Claims 8 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiltz (U.S. Patent 5,191,319) in view of Bohn Jr. (U.S. Patent 6,618,031).

Regarding **Claims 8 and 26**, in addition to the elements stated above regarding claims 1 and 20, Kiltz discloses lamp drivers (fig. 1 element 90 and Fig 4. element 90). Kiltz does not disclose using pulse width modulation to drive the LEDs. Bohn Jr. discloses that the on time of the PWM drive signal can be varied within each frame to independently select the brightness of each LED (col. 5 lines 1 – 14) (i.e. wherein the act (C) includes an act of transmitting pulse width modulated signals to the plurality of LEDs to control a perceived intensity of each of the plurality of LEDs). It would have been obvious to one of ordinary skill in the art at the time of the invention to use Bohn Jr.'s PWM method as Kiltz's lamp drivers in order to use power more efficiently and to control the intensity efficiently. Bohn Jr. discloses resistor current sources use more power than the PWM method and the LED varies nonlinearly with both power supply voltage variations and LED forward voltage variations (col. 1 lines 47 – 61).

Claims 41, 52, 61, 68, 75 and 83 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiltz (U.S. Patent 5,191,319) in view of Drago (U.S. Patent 5,461,188) in further view of Bohn Jr. (U.S. Patent 6,618,031).

Regarding **Claims 41, 52, 61, 68, 75 and 83**, in addition to the elements stated above regarding claims 35, 51, 57, 64, 71 and 78, Kiltz discloses lamp drivers (fig. 1

element 90 and Fig 4. element 90). Kiltz does not disclose using pulse width modulation to drive the LEDs. Bohn Jr. discloses that the on time of the PWM drive signal can be varied within each frame to independently select the brightness of each LED (col. 5 lines 1 – 14) (i.e. wherein the act (C) includes an act of transmitting pulse width modulated signals to the plurality of LEDs to control a perceived intensity of each of the plurality of LEDs). It would have been obvious to one of ordinary skill in the art at the time of the invention to use Bohn Jr.'s PWM method on the Kiltz's and Drago combination's lamp drivers in order to use power more efficiently and to control the intensity efficiently. Bohn Jr. discloses resistor current sources use more power than the PWM method and the LED varies nonlinearly with both power supply voltage variations and LED forward voltage variations (col. 1 lines 47 – 61).

Claims 41, 52, 61, 68, 75 and 83 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiltz (U.S. Patent 5,191,319) in view of Drago (U.S. Patent 5,461,188) in further view of Pohlman (Principles of Digital Audio Third Edition).

Regarding **Claim 56**, in addition to the elements stated above regarding claim 51, Kiltz further discloses that the music source can be any means by which audio information is translated into electronic signals (col. 3 lines 26 – 31). Kiltz does not explicitly state the audio input is in MP3 format

Pohlman discloses audio in an MP3 format (page 386 – 387). It would have been obvious to one or ordinary skill in the art at the time of the invention to apply MP3 encoded audio to Kiltz system. One would have been motivated to use MP3 audio as disclosed by Pohlman in order to reduce the amount of memory required to store the audio.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew C. Flanders whose telephone number is (571) 272-7516. The examiner can normally be reached on M-F 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on (571) 272-7848. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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